

Nalco Docket No. 7773
Customer No. 49459

REMARKS

Claims 1 to 13, 15 to 18, and 20 to 23 are currently pending. Claim 20 has been amended. A Declaration under 37 C.F.R. § 1.132 of co-inventor Michael R. St. John is submitted herewith.

RESPONSE TO ARGUMENTS

In the instant Office Action, the Examiner considered persuasive Applicants' amendments filed October 22, 2007 (in response to the Office Action dated October 12, 2007), with respect to the rejections of Claims 1 to 4, 6, 9, 13, 15 to 18, and 20 to 23 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over, U.S. Patent No. 4,603,176 to Bjorkquist et al. ("Bjorkquist"). Accordingly, this rejection has been withdrawn.

The Examiner did not find persuasive, however, Applicants arguments with respect to the rejection of all pending claims under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,556,932 to Coscia et al. ("Coscia"). Applicants disagree with the Examiner's restated rejections and have set forth arguments in this regard below.

35 U.S.C. § 112 CLAIM REJECTIONS

The Office Action rejected Claims 20 to 22 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have amended Claim 20 to clarify its elements. Therefore, Applicants respectfully request that this rejection be withdrawn.

35 U.S.C. §§ 102(b) and 103(a) CLAIM REJECTIONS

The Office Action rejected all pending claims under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being upatentable over Coscia as evidenced by U.S. Patent No. 6,083,348 to Auhorn et al. ("Auhorn") or U.S. Patent No. 6,315,866 B1 to Sanchez ("Sanchez"). Applicants respectfully traverse these rejections.

Nalco Docket No. 7773
Customer No. 49459

Regarding the § 102(b) rejection, the Examiner maintains the following:

Coscia teaches that ratios higher than 0.06:1 can be used but the increase in wet strength is minimal (col. 6, lines 53 to 58). The Examiner believes that Coscia discloses any ratio above 0.06:1 and the disclosed upper limit of 0.20:1 is a preferred limit rather than an absolute limit. In any case, the disclosed ratio of 0.20:1 touches the claimed range.

(Office Action at page 6)

Applicants respectfully assert that the Examiner has misinterpreted Coscia. Coscia does not disclose all ratios higher than 0.06. Rather, Coscia discloses 0.06 as a minimum value and 0.06 to 0.20 as a theoretical range of effectiveness for increased wet strength. In this regard, Coscia states:

The glyoxal reaction described above does not go to completion. For example, when a dilute aqueous solution of 25 mols of glyoxal and a 95:5 molar ratio acrylamide:diallyldimethyl ammonium chloride copolymer is warmed until a slight increase in viscosity occurs, about half of glyoxal does not react at all but remains dissolved in the water...A larger amount of glyoxal may be employed, but the increase in wet strength is minor"

(col. 6, lines 37 to 58)

The Examiner's statement that the disclosed ratio of 0.20 "touches" the claimed range is inaccurate. Claim 1 is directed to one or more aldehyde functionalized polymers comprising amino or amido groups wherein greater than 20 mole percent of the amino or amido groups are functionalized by reacting with one or more aldehydes. The 0.20 reacted glyoxal ratio is therefore under the claimed range. A range in the prior art that does not "overlap or touch" the claimed range does not anticipate the claimed range. (MPEP § 2131.03).

Moreover, the Examiner's statement, "Coscia does not disclose that the polymers enhance press section dewatering" is well placed. (Office Action at page 7). Because Coscia does not in any way disclose using its polymers for press section dewatering, Coscia cannot anticipate the instant claims that are specifically directed to enhancing press section dewatering.

Regarding the alternative § 103(a) rejection, Applicants can rebut a presumption of obviousness based on a claimed invention that falls within a prior art range by showing: (i) that the prior art teaches away from the claimed invention, or (ii) that new and unexpected results relative to the prior art exist. (MPEP § 2144.05).

Nalco Docket No. 7773
Customer No. 49459

Coscia expressly teaches away from using any polymers with a reacted ratio of greater than 0.12. Though Coscia states that ratios ranging from 0.06 to 0.20 afford the best wet strength efficiency, its teachings would not in any way motivate one skilled in the art to test polymers having greater than a 0.12 ratio, and, at the very least, would completely discourage attempting using polymers greater than 0.20

In addition, if half of the glyoxal remains unreacted, the resulting polymer includes a 0.12 ratio of reacted glyoxal. (see quote from Coscia on page 7 above). Coscia discloses repeatedly (see also Example 1 – col. 8, lines 65 to 67) that a 0.12 ratio of total reacted glyoxal is optimum and that any more would not have a beneficial effect. These statements therefore teach away from and would discourage a person of ordinary skill in the art from employing such polymers with greater than a 0.12 ratio of reacted glyoxal.

With respect to unexpected results, the enclosed Declaration of Michael R. St. John provides empirical evidence of unexpected results for the performance of polymers having a greater than 0.20 ratio of total reacted glyoxal. Table 1 of the Declaration shows results for various dosages of 0.20 and 0.26 total reacted ratio acrylamide polymers. Though the 0.20 ratio polymer provides a substantial benefit, it is readily apparent that a significant press section dewatering benefit is obtained when a 0.26 ratio polymer is used as compared to the 0.20 ratio polymer. This result is in stark contrast to the teachings of Coscia.

Where Coscia unequivocally states that a reacted ratio of more than 0.20 fails to provide a benefit, Michael R. St. John's empirical evidence shows the opposite. Applicants have thus demonstrated evidence of unexpected advantageous properties. The claimed polymers have been shown to be superior in a way that Coscia taught away from. Applicants have likewise shown results greater than those which would have been expected from the teachings of Coscia and that the results are of a significant, practical advantage. (See MPEP § 716(a)).

Therefore, Applicants respectfully assert that Claim 1 and the remaining dependent claims are patentably distinct over the references of record and are in condition for allowance.

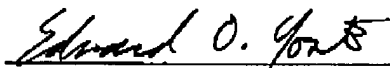
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Nalco Docket No. 7773
Customer No. 49459

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. §§ 112, 102(b), and 103(a). Applicants respectfully assert that all pending claims in this Application are in condition for allowance and earnestly solicit early notice to this effect.

Respectfully Submitted,



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